AMENDMENTS TO THE CLAIMS

This listing of claims is to replace all prior versions and listings of claims in the application.

1. (Withdrawn) A method of selecting for one or more cells having a specific response to a stimulatory agent of interest, said method including the steps of:

(a) inserting a vector including a cassette comprising an internal ribosome entry site, a positive selection marker, a negative selection marker, and a reporter gene into eukaryotic cells under conditions that result in the integration of said cassette into the genome of said cells, whereby said reporter gene is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said reporter gene is specifically activated by said stimulatory agent.

2. (Withdrawn) The method of claim 1, wherein step (b) comprises

(i) incubating said cells in the presence of said stimulatory agent and a positive selection agent; and

(ii) incubating said cells under conditions in which a negative selection agent is present and said stimulatory agent is absent.

3. (Withdrawn) The method of claim 1, wherein step (b) comprises

(i) incubating said cells in the presence of a positive selection agent;

(ii) incubating said cells in the presence of a negative selection agent;

(iii) incubating said cells in the presence of said stimulatory agent; and

(iv) selecting said cells that express said reporter gene in the presence of said stimulatory agent.

4. (Withdrawn) The method of claim 1, wherein said vector does not contain a promoter operably linked to said reporter gene.

5. (Withdrawn) The method of claim 1, wherein said cells are selected from the group consisting of mast cells, stem cells, epithelial cells, fibroblast cells, cancer cells, lymphocytes, and liver cells.

6. (Withdrawn) The method of claim 1, wherein said stimulatory agent is selected from the group consisting of cytokines, ligands, polypeptides, growth factors, antibodies, and chemical agents.

7. (Withdrawn) The method of claim 6, wherein said stimulatory agent is selected from the group consisting of stem cell factor, IL-3, IL-2, IL-6, IL-18, IgE, FGF-1, FGF-2, FGF-3, TGF-β, TNF-β, TNF-α, VEGF, and leptin.

8. (Withdrawn) The method of claim 1, wherein the reporter gene encodes an enzyme.

9. (Withdrawn) The method of claim 8, wherein said enzyme is selected from the group consisting of secreted alkaline phosphatase, β-galactosidase, luciferase, and green fluorescent protein.

10. (Withdrawn) The method of claim 1, wherein said vector further comprises a nucleic acid segment encoding a transactivator polypeptide, and wherein said nucleic acid is integrated into the genome of said cells.

11. (Withdrawn) The method of claim 10, wherein said transactivator polypeptide

is a tetracycline regulator protein (tTA).

12. (Withdrawn) A method of selecting for one or more cells having a specific response to a stimulatory agent of interest, said method including the steps of:

(a) inserting a vector including a cassette comprising a positive selection marker, a negative selection marker, and nucleic acid segment encoding a transactivator polypeptide into eukaryotic cells under conditions that result in the integration of said cassette into the genome of said cells, whereby said nucleic acid segment encoding a transactivator polypeptide is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said transactivator polypetide is specifically activated by said stimulatory agent.

13. (Withdrawn) The method of claim 12, wherein step (b) comprises

(i) incubating said cells in the presence of said stimulatory agent and a positive selection agent; and

(ii) incubating said cells under conditions in which a negative selection agent is present and said stimulatory agent is absent.

14. (Withdrawn) The method of claim 12, wherein step (b) comprises

(i) incubating said cells in the presence of a positive selection agent;

(ii) incubating said cells in the presence of a negative selection agent;

(iii) incubating said cells in the presence of said stimulatory agent; and

(iv) selecting said cells that express said reporter gene in the presence of said stimulatory agent.

15. (Withdrawn) The method of claim 12, wherein said vector does not contain a promoter operably linked to said nucleic acid segment encoding a transactivator

polypeptide.

16. (Withdrawn) A method of selecting for one or more cells having a specific response to a stimulatory agent of interest, said method including the steps of:

(a) inserting a vector including a cassette comprising an internal ribosome entry site, a positive selection marker, a negative selection marker, and a reporter gene into eukaryotic cells under conditions that result in integration of said cassette into the genome of said cells, whereby said reporter gene is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said reporter gene is specifically inactivated by said stimulatory agent.

17. (Withdrawn) The method of claim 16, wherein step (b) comprises

(i) incubating said cells in the presence of a positive selection agent; and

(ii) incubating said cells in the presence of said stimulatory agent and a negative selection agent.

18. (Withdrawn) The method of claim 16, wherein said vector does not contain a promoter operably linked to said reporter gene.

19. (Withdrawn) The method of claim 16, wherein said cells are selected from the group consisting of mast cells, stem cells, epithelial cells, fibroblast cells, cancer cells, lymphocytes, and liver cells.

20. (Withdrawn) The method of claim 16, wherein said stimulatory agent is selected from the group consisting of cytokines, ligands, polypeptides, growth factors, antibodies, and chemical agents.

21. (Withdrawn) The method of claim 20, wherein said stimulatory agent is selected from the group consisting of stem cell factor, IL-3, IL-2, IL-6, IL-18, IgE, FGF-1, FGF-2, FGF-3, TGF-β, TNF-β, TNF-α, VEGF, and leptin.

22. (Withdrawn) The method of claim 16, wherein the reporter gene encodes an enzyme.

23. (Withdrawn) The method of claim 22, wherein said enzyme is selected from the group consisting of secreted alkaline phosphatase, β-galactosidase, luciferase, and green fluorescent protein.

24. (Withdrawn) The method of claim 16, wherein said vector further comprises a nucleic acid segment encoding a transactivator polypeptide, and wherein said nucleic acid is integrated into the genome of said cells.

25. (Withdrawn) The method of claim 24, wherein said transactivator polypeptide is tTA.

26. (Withdrawn) A method of selecting for one or more cells having a specific response to a stimulatory agent of interest, said method including the steps of:

(a) inserting a vector including a cassette comprising a positive selection marker, a negative selection marker, and a nucleic acid segment encoding a transactivator polypeptide into eukaryotic cells under conditions that result in integration of said cassette into the genome of said cells, whereby said nucleic acid segment encoding a transactivator polypeptide is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said transactivator polypeptide is specifically inactivated by said stimulatory agent.

27. (Withdrawn) The method of claim 26, wherein step (b) comprises

(i) incubating said cells in the presence of a positive selection agent; and

(ii) incubating said cells in the presence of said stimulatory agent and a negative selection agent.

28. (Withdrawn) The method of claim 26, wherein said vector does not contain a promoter operably linked to said nucleic acid segment encoding a transactivator polypeptide.

29. (Withdrawn) The method of claim 1, 12, 16, or 26, further comprising the step of (c) identifying said regulatory element.

30. (Withdrawn) The method of claim 29, wherein said positive selection marker is operably linked to a prokaryotic promoter in said cassette, and wherein step (c) comprises

(i) inserting a nucleic acid comprising said positive selection marker and comprising a segment of the genome flanking said cassette into bacterial cells under conditions that allow the selection of said bacterial cells expressing said positive selection marker under the control of said prokaryotic promoter;

(ii) amplifying said segment flanking said cassette; and

(iii) sequencing said amplified segment.

31. (Withdrawn) The method of claim 29, wherein said positive selection marker is operably linked to a yeast promoter in said cassette, and wherein step (c) comprises

(i) inserting a nucleic acid comprising said positive selection marker and comprising a segment of the genome flanking said cassette into yeast cells under conditions that allow the selection of said yeast cells expressing said positive selection marker under the control of said yeast promoter;

(ii) amplifying said segment flanking said cassette; and

(iii) sequencing said amplified segment.

32. (Withdrawn) A method for identifying a nucleic acid of interest that encodes a protein that modulates the activity of a regulatory element in a cell, said method including the steps of:

(a) inserting a first vector including a first cassette comprising a first positive selection marker, a negative selection marker, a reporter gene, and a nucleic acid segment encoding a transactivator polypeptide into eukaryotic cells under conditions that result in integration of said first cassette into the genome of said cells; wherein said reporter gene is operably linked to a regulatory element in at least one cell;

(b) inserting a second vector including a second cassette comprising a promoter operably linked to a responsive element that is responsive to said transactivator polypeptide into said cells under conditions that result in integration of said second cassette into the genome of said cells; wherein said promoter is operably linked to a nucleic acid of interest encoding a protein in at least one cell; and wherein said encoded protein modulates the activity of said regulatory element;

(c) selecting cells that have an altered level of reporter gene expression under conditions that activate said transactivator polypeptide; and

(d) identifying said nucleic acid of interest in at least one selected cell.

33. (Withdrawn) The method of claim 32, wherein said second vector further comprises a second positive selection marker, and wherein said second positive selection

marker is integrated into the genome of said cells.

34. (Withdrawn) The method of claim 33, wherein said second positive selection marker is operably linked to a prokaryotic promoter in said second cassette, and wherein step (d) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said second cassette into bacterial cells under conditions that allow the selection of said bacterial cells expressing said second positive selection marker under the control of said prokaryotic promoter;

(ii) amplifying said segment flanking said second cassette; and

(iii) sequencing said amplified segment.

35. (Withdrawn) The method of claim 33, wherein said second positive selection marker is operably linked to a yeast promoter in said second cassette, and wherein step (d) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said second cassette into yeast cells under conditions that allow the selection of said yeast cells expressing said second positive selection marker under the control of said yeast promoter;

(ii) amplifying said segment flanking said second cassette; and

(iii) sequencing said amplified segment.

36. (Withdrawn) The method of claim 32, wherein said transactivator polypeptide is tTA and said responsive element comprises a tetracycline responsive element.

37. (Withdrawn) A method for identifying a nucleic acid of interest that encodes a protein that modulates the activity of a regulatory element in a cell, said method including

the steps of:

(a) inserting a first vector including a first cassette comprising a positive selection marker, a negative selection marker, and a recombinase signal sequence into eukaryotic cells under conditions that result in integration of said first cassette into the genome of said cells;

(b) inserting a second vector including a second cassette that includes a recombinase signal sequence, a nucleic acid segment encoding a transactivator polypeptide, and a reporter gene into said cells under conditions that result in recombination between said recombinase signal sequence in said second vector and said recombinase signal sequence integrated into the genome of said cells such that said second cassette is integrated into the genome of at least one cell; and wherein said reporter gene is operably linked to a regulatory element in at least one cell;

(c) inserting a third vector including a third cassette comprising a promoter operably linked to a responsive element that is responsive to said transactivator polypeptide into said cells under conditions that result in integration of said third cassette into the genome of said cells; wherein said promoter is operably linked to a nucleic acid of interest encoding a protein that modulates the activity of said regulatory element in at least one cell;

(d) selecting cells that have an altered level of reporter gene expression under conditions that activate said transactivator polypeptide; and

(e) identifying said nucleic acid of interest in at least one selected cell.

38. (Withdrawn) The method of claim 37, wherein said third vector further comprises a second positive selection marker, and wherein said second positive selection marker is integrated into the genome of said cells.

39. (Withdrawn) The method of claim 38, wherein said second positive selection

marker is operably linked to a prokaryotic promoter in said third cassette, and wherein step (e) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said third cassette into bacterial cells under conditions that allow the selection of said bacterial cells expressing said second positive selection marker under the control of said prokaryotic promoter;

(ii) amplifying said segment flanking said third cassette; and

(iii) sequencing said amplified segment.

40. (Withdrawn) The method of claim 39, wherein said second positive selection marker is operably linked to a yeast promoter in said third cassette, and wherein step (e) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said third cassette into yeast cells under conditions that allow the selection of said yeast cells expressing said second positive selection marker under the control of said yeast promoter;

(ii) amplifying said segment flanking said third cassette; and

(iii) sequencing said amplified segment.

41. (Withdrawn) The method of claim 37, wherein said transactivator polypeptide is tTA and said responsive element comprises a tetracycline responsive element.

42. (Withdrawn) The method of claim 37, wherein said recombinase signal sequence is a LoxP site.

43. (Withdrawn) The method of claim 42, wherein said first vector and/or said second vector include two LoxP sites.

44. (Withdrawn) A method for identifying a nucleic acid of interest that encodes a protein that modulates the activity of a regulatory element in a cell, said method including the steps of:

(a) inserting a first vector including a first cassette comprising a positive selection marker, a negative selection marker, a reporter gene, and a recombinase signal sequence into eukaryotic cells under conditions that result in integration of said first cassette into the genome of said cells;

(b) inserting a second vector including a second cassette that includes a recombinase signal sequence and a nucleic acid segment encoding a transactivator polypeptide into said cells under conditions that result in recombination between said recombinase signal sequence in said second vector and said recombinase signal sequence integrated into the genome of said cells such that said second cassette is integrated into the genome of at least one cell; and wherein said reporter gene is operably linked to a regulatory element in at least one cell;

(c) inserting a third vector including a third cassette comprising a promoter operably linked to a responsive element that is responsive to said transactivator polypeptide into said cells under conditions that result in integration of said third cassette into the genome of said cells; wherein said promoter is operably linked to a nucleic acid of interest encoding a protein that modulates the activity of said regulatory element in at least one cell;

(d) selecting cells that have an altered level of reporter gene expression under conditions that activate said transactivator polypeptide; and

(e) identifying said nucleic acid of interest in at least one selected cell.

45. (Withdrawn) The method of claim 44, wherein said third vector further comprises a second positive selection marker, and wherein said second positive selection

marker is integrated into the genome of said cells.

46. (Withdrawn) The method of claim 45, wherein said second positive selection marker is operably linked to a prokaryotic promoter in said third cassette, and wherein step (e) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said third cassette into bacterial cells under conditions that allow the selection of said bacterial cells expressing said second positive selection marker under the control of said prokaryotic promoter;

(ii) amplifying said segment flanking said third cassette; and

(iii) sequencing said amplified segment.

47. (Withdrawn) The method of claim 45, wherein said second positive selection marker is operably linked to a yeast promoter in said third cassette, and wherein step (e) comprises

(i) inserting a nucleic acid comprising said second positive selection marker and comprising a segment of the genome flanking said third cassette into yeast cells under conditions that allow the selection of said yeast cells expressing said second positive selection marker under the control of said yeast promoter;

(ii) amplifying said segment flanking said third cassette; and

(iii) sequencing said amplified segment.

48. (Withdrawn) The method of claim 44, wherein said transactivator polypeptide is tTA and said responsive element comprises a tetracycline responsive element.

49. (Withdrawn) The method of claim 44, wherein said recombinase signal sequence is a LoxP site.

50. (Withdrawn) The method of claim 49, wherein said first vector and/or said second vector include two LoxP sites.

51. (Withdrawn) A method for treating, preventing, or stabilizing a disease associated with a stimulatory agent, said method including the steps of:

(a) inserting a vector including a cassette comprising a positive selection marker, a negative selection marker, and a reporter gene into eukaryotic cells under conditions that result in the integration of said cassette into the genome of said cells, whereby said reporter gene is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said reporter gene is specifically modulated by said stimulatory agent;

(c) selecting a compound that increases or decreases the effect of said stimulatory agent on the expression of said reporter gene; and

(d) administering said compound to a mammal having a disease associated with said stimulatory agent.

52. (Withdrawn) A method for treating, preventing, or stabilizing a disease associated with a stimulatory agent, said method including the steps of:

(a) inserting a vector including a cassette comprising a positive selection marker, a negative selection marker, and a nucleic acid segment encoding a transactivator polypeptide into eukaryotic cells under conditions that result in the integration of said cassette into the genome of said cells, whereby said nucleic acid segment encoding a transactivator polypeptide is operably linked to a regulatory element in at least one cell; and

(b) selecting cells in which expression of said transactivator polypeptide is specifically modulated by said stimulatory agent;

(c) selecting a compound that increases or decreases the effect of said stimulatory agent on the expression of said transactivator polypeptide; and

(d) administering said compound to a mammal having a disease associated with said stimulatory agent.

53. (Currently Amended) A nucleic acid including, ~~an internal ribosome entry site, a positive selection marker, a negative selection marker, and a reporter gene~~ in 5' to 3' orientation,

(a) a splice acceptor site;

(b) a cassette including, in any order, a negative selection marker and a positive selection marker, wherein said negative selection marker, said positive selection maker, or both are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell;

(c) a translation stop sequence,

(d) an internal ribosome entry site, and

(e) a reporter gene; or

(a) a splice acceptor site; and

(b) a cassette including in any order, a negative selection marker, a positive selection marker, an internal ribosome entry site, and a reporter gene, wherein said positive selection marker and reporter gene are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell; or

(a) a splice acceptor site;

(b) an internal ribosome entry site; and

(c) a cassette including, in any order, a negative selection marker, a positive selection marker, and a reporter gene, wherein said reporter gene and said positive

selection marker are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell; or

(a) a splice acceptor site;

(b) an internal ribosome entry site; and

(c) a cassette including, in any order, a negative selection marker, a positive selection marker, and a reporter gene, wherein said negative selection marker and said positive selection marker are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell; or

(a) a splice acceptor site;

(b) a reporter gene;

(c) a translation stop sequence;

(d) an internal ribosome entry site; and

(e) a cassette including, in any order, a negative selection marker and a positive selection marker, wherein said negative selection marker and said positive selection marker are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell; or

(a) a splice acceptor site; and

(b) a cassette including, in any order, a negative selection marker, a positive selection marker, a reporter gene, and a recombinase signal sequence, wherein said positive selection marker and said negative selection marker are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell.

54. (Currently Amended) A ~~The~~ nucleic acid ~~of claim 53,~~ including, in 5' to 3' ~~sequence~~ orientation,

(a) a splice acceptor;

(b) a cassette including, in any order, a negative selection marker and a positive selection marker,

(c) a translation stop sequence,

(d) an internal ribosome entry site, and

(e) a reporter gene.

55. (Currently Amended) ~~The~~ A nucleic acid ~~of claim 53~~ including, in 5' to 3' ~~sequence~~ orientation,

(a) a splice acceptor;

(b) a cassette including, in any order, a negative selection marker and a reporter gene;

(c) a translation stop sequence,

(d) a promoter,

(e) a positive selection marker;

(f) a translation stop sequence; and

(g) a polyadenylation signal.

56. (Currently Amended) ~~The~~ A nucleic acid ~~of claim 53~~ including in 5' to 3' orientation,

(a) a splice acceptor site;

(b) a cassette including, in any order, a negative selection marker and a positive selection marker;

(c) a translation stop sequence,

(d) an internal ribosome entry site, and

(e) a reporter gene; wherein said reporter gene is not operably linked to a promoter in said nucleic acid, or

(a) a splice acceptor site;

(b) a negative selection marker, wherein said negative selection marker is operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell;

(c) a reporter gene;

(d) a translation stop sequence;

(e) a promoter; and

(f) a positive selection marker; or

(a) a splice acceptor site;

(b) an internal ribosome entry site;

(c) a cassette including in any order a reporter gene and a negative selection marker, wherein said reporter gene and negative selection marker are operably linked to regulatory elements of a host cellular gene after said nucleic acid is contacted with a cell;

(d) a translation stop sequence;

(a) a promoter; and

(b) a positive selection marker.

57. (Currently Amended) The nucleic acid of claim 53 or 56, further including a nucleic acid segment encoding a transactivator polypeptide.

58. (Currently Amended) The nucleic acid of claim 53 or 56, further including one or more recombinase signal sequences.

59. (Currently Amended) ~~The~~ A nucleic acid ~~of claim 53, further~~ including ~~a prokaryotic promoter operably linked to said positive selection marker~~ in 5' to 3'

orientation,

(a) a splice acceptor site;

(b) a cassette including, in any order, a negative selection marker and a positive selection marker;

(c) a translation stop sequence,

(d) an internal ribosome entry site, and

(e) a reporter gene; or

(a) a splice acceptor site;

(b) a negative selection marker;

(c) a reporter gene;

(d) a translation stop sequence; and

(e) a positive selection marker;

wherein said positive selection marker is operably linked to a prokaryotic promoter.

60. (Currently Amended) A nucleic acid including a positive selection marker, a negative selection marker, and a nucleic acid segment encoding a transactivator polypeptide, wherein said positive selection marker and said negative selection marker are operably linked to a host cellular gene after said nucleic acid is contacted with a cell.

61. (Currently Amended) A nucleic acid including a splice acceptor site, a positive selection marker, a negative selection marker, and a recombinase signal sequence, wherein said positive selection marker and said negative selection marker are operably linked to a host cellular gene after said nucleic acid is contacted with a cell.

62. (Cancelled)

63. (Currently Amended) A vector that includes the nucleic acid of claim 53, 56, 59, 60, or 61~~, or 62~~.

64. (Original) The vector of claim 63, which is a retroviral vector.

65. (Original) The vector of claim 63, further including an integration sequence.

66. (Original) A cell including the vector of claim 63.

67. (Original) The cell of claim 66, responsive to one or more stimulatory agents.

68. (Original) A cell including (i) a first nucleic acid which includes a positive selection marker, a negative selection marker, and a nucleic acid segment encoding a transactivator polypeptide and (ii) a second nucleic acid which includes a promoter operably linked to a responsive element that is responsive to said transactivator polypeptide.

69. (Withdrawn) A screening method for selecting candidate compounds that modulate the activity of a stimulatory agent of interest, said method including the steps of:

(a) contacting one or more cells of claim 66 or 68 having a specific response to said stimulatory agent with one or more candidate compounds and said stimulatory agent; and

(b) selecting the candidate compounds which modulate said response to said stimulatory agent.

70. (Withdrawn) The method of claim 69, wherein said candidate compound increases said response to said stimulatory agent.

71. (Withdrawn) The method of claim 69, wherein said candidate compound decreases said response to said stimulatory agent.

72. (Withdrawn) A method for determining whether a candidate compound modulates the activity of a regulatory element of interest, said method including the steps of:

(a) contacting one or more cells of claim 66 or 68 having said regulatory element of interest operably linked to a positive selection marker, reporter gene, or nucleic acid segment encoding a transactivator polypeptide with one or more candidate compounds; and

(b) selecting a candidate compound which modulates the expression of said positive selection marker, reporter gene, or nucleic acid segment encoding a transactivator polypeptide, thereby selecting a candidate compound which modulates the activity of said regulatory element of interest.

73. (Withdrawn) The method of claim 72, wherein said candidate compound is eliminated from drug development.

74. (Withdrawn) The method of claim 72, wherein said method is performed prior to an animal model study or human clinical trial of said candidate compound.

75. (Withdrawn) A method for determining whether a test compound damages DNA of eukaryotic cells, said method comprising the steps of:

(a) providing a eukaryotic test cell containing regulatory DNA

operatively associated with a reporter gene, wherein said regulatory DNA is derived from a gene that is activated in a cell upon damage to DNA in said cell,

(b) contacting said test compound with said test cell, and

(c) detecting said reporter as an indictor that said test compound damages DNA.

76. (Withdrawn) The method of claim 1, wherein said cassette further comprises a prokaryotic promoter operably linked to said positive selection marker.

77. (Withdrawn) The method of claim 16, wherein said cassette further comprises a prokaryotic promoter operably linked to said positive selection marker.

78. (Withdrawn) The method of claim 51, wherein said cassette further comprises an internal ribosome entry site.

79. (New) The nucleic acid of any one of claims 53, 56, 59, 60, or 61, wherein said negative selection marker is selected from the group consisting of Hprt, gpt, HSV-tk, diphtheria toxin, ricin toxin, and cytosine deeaminase.

80. (New) The nucleic acid of any one of claims 53, 56, 59, 60, or 61, wherein said positive selection marker is neomycin resistance, hygromycin resistance, histidinol resistance, xanthine utilization, Zeocin resistance, bleomycin resistance, or the presence of green fluorescence protein.

81. (New) The nucleic acid of any one of claims 53, 56, or 59, wherein the reporter gene encodes an enzyme.

82. (New) The nucleic acid of claim 81, wherein said enzyme is selected from the

group consisting of secreted alkaline phosphatase, β-galactosidase, luciferase, and green fluorescent protein.